

REMARKS

Claims 7, 11, 12 and 16-40 are active in this application. Support for the amendment to Claims 7 and 17 as well as new Claims 23-40 is found in Claims 12-15 and the specification as originally filed. Applicants affirm the election of Group II, Claims 8-18 and also request that the method claims be rejoined upon finding that the elected product claims have been allowed (MPEP § 821.04).

The claims are directed to a pickle solution which contains at least one protein, at least one transglutaminase, an ammonium salt in an amount of from 0.001 mol/liter to 0.1 mol/liter and water. Neither Susa (U.S. Patent 6,303,162) or Soeda (U.S. Patent 5,518,742) describe such a pickle solution and therefore, Applicants request the withdrawal of the rejections under 35 U.S.C. § 102(e) and § 102(b).

Turning to the rejection of Claim 9 under 35 U.S.C. § 103(a) over Susa or Soeda in view of Wan, this rejection is obviated by the cancellation of Claim 9.

Further, the now pending claims are not obvious in view of Susa or Soeda in view of Nowasad et al because these references do not describe formulating a pickle solution with a specific range of ammonium salt, i.e., from 0.001 mol/lite to 0.1 mol/liter.

Susa and Soeda do not describe ammonium salt. Nowasad describe that amine salts such as ammonium salts in a concentration of 0.1 to 1.0 molar inhibit transglutaminase (see page 1017, column 1, first paragraph). In addition, Nowasad describe that “the breaking force and breaking strain showed a tendency of gradual decrease with the increase of the mole fraction of ammonium chloride and various amine salts added . . .” (Page 1018, column 2, , 4th paragraph, referencing Figure 1). However, the cited references fail to describe selecting a specific range of ammonium salt, i.e., 0.01 mol/liter to 0.1 mol/liter. In addition, the cited

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references do not provide any discussion that this particular range of ammonium salt would be expected to have advantages for the pickle solution in which the salt had been added.

As described on page 6, lines 16-22, "When ammonium salt is used as the suppressing compound, if the concentration exceeds 0.2 mol/liter, the requisite TGase activity in the meat product is not attained. Therefore, when ammonium salts are used as the suppressing compound, the ammonium salt concentration is preferably below 0.1 mol/liter."

This statement is supported by the data shown in, for example, Tables 1-3 (see pages 10-12). For reference, these tables are reproduced below:

Table 1. Pickle solution

Ingredients	Concentration (%)
Soy bean protein for ham	4
Sodium casein	1.5
Egg white	2
Whey protein	1.5
Sodium chloride	4
Sodium nitrite	0.03
Polymerized phosphate (salt)	0.6
Ascorbic acid	0.2
Dextrin	7.5
Sugar	0.7
Glutamate Na	0.3
Water	77.67
Total	100

Table 2. TGase and TGase suppressing compounds in pickle solutions

Experimental groups	TGase (U/liter)	NH ₄ Cl (mol/liter)	Anserine (mol/liter)	Carnosine (mol/liter)
(1)	0	0	-	-
(2)	50	0	-	-
(3)	100	0	-	-
(4)	150	0	-	-
(5)	200	0	-	-
(6)	200	0.002	-	-
(7)	200	0.02	-	-
(8)	200	0.2	-	-
(9)	200	-	0.2	-
(10)	200	-	-	0.2

Table 3. Pickle viscosity, physical properties and quality assessment of the model ham

Experimental groups	Pickle viscosity (cP) at 5°C				Breaking strength of the model ham (gram)	Quality assessment of the model ham*
	Immediately after preparation	one day later	2 days later	3 days later		
(1)	29	30	32	34	537	X
(2)	31	35	41	83	599	X
(3)	30	94	125	444	680	Δ
(4)	32	74	153	808	733	○
(5)	27	114	317	3855	773	○
(6)	26	52	110	312	770	○
(7)	31	44	66	95	752	○
(8)	30	31	36	45	686	Δ
(9)	31	41	58	87	722	○
(10)	31	42	56	90	734	○

*: Effect of the TGase on firmness of the ham

X : insufficient;
Δ : slightly insufficient; and
○ : sufficient.

The pickle solution is shown in Table 1 and the amounts of transglutaminase (TGase) and ammonium chloride (NH₄CL) added to the pickle solution is shown in Table 2. This pickle solution was then added to meat to produce a ham (see page 11) and the quality of the ham was assessed, the results of which are presented in Table 3.

The data show that when the ammonium salt is in an amount of 0.2 (experimental group (8)) the breaking strength of the model ham and quality assessment of the model ham were significantly lower compared to ham prepared with pickle solutions with ammonium salt lower than 0.1 mol/liter, i.e., 0.02 and 0.002 (see experimental groups 6 and 7).

As the cited prior art does not provide any suggestion to select the specific range of ammonium salt in the present claims nor the advantages obtained thereby, the present claims cannot be obvious in light of the cited prior art. Therefore, withdrawal of the rejection under 35 U.S.C. § 103(a) over Susa or Soeda in view of Nowsad is requested.

Applicants submit that the present application is now ready for allowance. Early notification of such allowance is kindly requested.

Respectfully submitted,

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